MINUTES

OF

THE UTAH RADIATION CONTROL BOARD

April 7, 2006

DEQ Building #2

Conference Room 101

168 N 1950 W

Salt Lake City, Utah 84114-4850

BOARD MEMBERS PRESENT
Karen S. Langley, M.S., Chair
Stephen T. Nelson, Ph.D., Vice Chair
Dianne R. Nielson, Ph.D., Director of DEQ
Craig W. Jones, Acting Executive Secretary
Kent J. Bradford, P.G.
Patrick D. Cone
Frank D. DeRosso
Rod O. Julander, Ph.D.
Linda M. Kruse, M.S.
Joseph K. Miner, M.D., M.S. Ph.D.
Joette E. Langianese, Commissioner
Robert S. Pattison, B.Sc.
John W. Thomson, M.D.

PUBLIC
Mark Ledoux, Energy*Solutions*, LLC
Alan Peterson, U.S. Ecology
Brett Rogers, Energy*Solutions*, LLC
Tye Rogers, Energy*Solutions*, LLC
Reva Servoss, League of Women Voters
Dan Shrum, Energy*Solutions*, LLC
Mark Walker, Energy*Solutions*, LLC
MareLynn Zipser, League of Women Voters

BOARD MEMBERS ABSENT/EXCUSED
Gregory G. Oman, D.D.S., B.S.

DRC STAFF/OTHER DEQ MEMBERS PRESENT
Yoli Necochea, DRC Staff
Raymond Nelson, DRC Staff

GREETINGS/MEETING CALLED TO ORDER

The Utah Radiation Control Board convened in DEQ Building #2, Room 101, 168 North 1950 West, Salt Lake City, Utah. Karen S. Langley, Chair, called the meeting to order at 2:00 p.m. She welcomed the Board Members and the public. Karen Langley indicated that if the public wished to address any items on the agenda, they should sign the public sign-in sheet. Those desiring to comment would be given an opportunity to address their concerns during the comment period.

Craig W. Jones served as Acting Executive Secretary for Dane L. Finerfrock who was unable to attend the Board Meeting.

I. APPROVAL OF MINUTES (Board Action Item)

a. Approval of March 3, 2006 Minutes

Karen S. Langley, Chair, asked the Board Members, if they had any corrections to the minutes of March 3, 2006.

There were no proposed changes to the March 3, 2006, minutes by the Board Members.

MOTION MADE BY ROB O. JULANDER TO APPROVE THE MINUTES AS WRITTEN, SECONDED BY LINDA M. KRUSE.

THERE WAS ONE ABSTAINTION TO THE VOTE BY JOETTE E. LANGIANESE, WHO WAS NOT IN ATTENDANCE AT THE LAST BOARD MEETING.

MOTION CARRIED AND APPROVED

II. RULES

No Items

III. RADIOACTIVE MATERIALS LICENSING/INSPECTION

No Items

IV. X-RAY REGISTRATION/INSPECTION

No Items

V. RADIOACTIVE WASTE DISPOSAL (Board Action Item)

a. Energy*Solutions'* Request to Accept Carbon-14 in Activated Graphite for Disposal

Craig Jones presented this item, on behalf of Dane L. Finerfrock and he began by directing the Board Members to turn to tab 5 in the Board packet. Craig said that the request from Energy*Solutions* makes use of some terms regarding activated metal and activated graphite. In order for the Board to have a better understanding how a metal is activated, Craig described the process used to activate gold. He further explained the beneficial use of radioactive gold seeds in medical therapy procedures.

Craig Jones explained Energy*Solutions'* request. He noted that the request was outlined in a letter sent to the Division of Radiation Control (DRC) by Mr. Tye Rogers. Mr. Jones said Energy*Solutions'* request involved activated graphite, and it was submitted for the Board's concurrence and for their interpretation of the use of activated graphite in the Radiation Control Rules. The specific matter involves the classification characteristics of Low-Level Waste (LLW).

Craig said that the Radiation Control rules allow the disposal of carbon-14 with a concentration limit of 0.8 curie per cubic meter (Ci/m^3) for Class A waste. He noted the limit is specific to carbon-14; but if the Class A waste is carbon-14 in activated metal, then the concentration limit is 8.0 Ci/m^3. He said Energy*Solutions'* request represents that the disposal of carbon-14 in graphite is similar to the disposal of carbon-14 in "activated metal." Craig Jones said that Energy*Solutions* is asking for the Board's concurrence with EnergySolutions' use of carbon-14 in activated graphite (since concentration limits for carbon-14 in an activated metal could be applied for the disposal of carbon-14 in graphite).

Mr. Jones introduced Mr. Tye Rogers, a representative from Energy*Solutions*. Mr. Rogers shared information about EnergySolutions' technical evaluation of using carbon-14 in graphite.

Tye Rogers, Energy*Solutions* Presentation:

Tye Rogers thanked the Radiation Control Board for taking the time to consider his request. He then introduced himself and his colleagues: Mark Ledoux, a Certified Health Physicist and Enery*Solutions* Corporate Radiation Safety Officer; and Dan Shrum, a professional geologist with a Master's degree in geology. Tye informed the Board that Mark and Dan would be able to help with questions the Board might have, if he could not address their questions.

Tye Rogers commented that Craig Jones had already covered the preliminary aspects of their presentation, especially where he explained the differences between activated metal and non-activated metal.

He said that in a letter dated February 23, 2006, Energy*Solutions* requested the DRC to provide an interpretation regarding carbon-14, Class

A, concentration limits. Tye explained that Energy*Solutions* provided a technical evaluation to the DRC. They, in turn, reviewed it, and provided the response that is in the Board packet. He explained that the Board also had the initial layout of the technical basis for the request in the board packet.

Tye said in EnergySolutions' radioactive material license, as well as in the Radioactive Control Rules, there are two Class A limits for carbon-14. He noted one of the limits for carbon-14 in activated metal is 8.0 Ci/m^3, and the other Class A limit for carbon-14 in other radioactive material is 0.8 Ci/m^3. He said that both are Class A limits.

Tye Rogers informed the Board that the purpose of their presentation was to receive authorization from the Utah Radiation Control Board to apply the limit of 8.0 Ci/m^3 of carbon-14 in activated metal to a waste stream EnergySolutions would like to receive. The waste stream contains carbon-14 in activated graphite. He said in regards to waste classification and how the waste performs in a disposal cell, we will demonstrate that carbon-14 in activated graphite is actually equivalent to carbon-14 in activated metal.

He made the following points to the Board:

- The DRC staff reviewed the licensee's technical analysis and agreed with the licensee that carbon-14 in graphite is similar to carbon-14 in activated metal. As such, carbon-14 in graphite at the concentration limit specified in the license Condition 16.L may be acceptable for land disposal at the Energy*Solutions* facility.
- An amendment request to apply the license limit for carbon-14 in activated metal to carbon-14 in activated graphite is not needed.
- There will not be an increase in the current license concentration-limit, because the license already allows the receiving of carbon-14 in activated-metal at the Class A concentration limit of 8.0 Ci/m^3.
- The NRC developed 10 CFR Part 61 in 1983. NRC could not conceive of every waste scenario that they needed to make a rule to regulate; consequently, they allowed alternative provisions that can be approved on a case by case basis (see 10 CFR 61.58).
- The NRC groups different waste forms into categories that need to meet the regulatory requirements. The category that they group activated metal into is also the same category of activated material like graphite or components. NRC uses the terms "activated metal, material, or components" in describing similar radioactive waste types.
- NRC and Utah DRC allow a factor of 10 increase in the Class A concentration limit for specific radionuclides where the waste form

is more stable i.e., the 0.8 and 8.0 Ci/m^3 concentration limits for carbon-14.

- Carbon-14 in graphite decomposes more slowly than carbon-14 in metal.
- The graphite matrix has a greater affinity to retain carbon-14 than a metal matrix. This means that once it has been released from the solid waste form, the carbon-14 in graphite will move more slowly through the disposal cell compared to carbon-14 in activated metal.
- The disposal cells at EnergySolutions meet the density requirements.
- The source term that was used to model the movement of carbon-14 was the higher limit of 8.0 Ci/m^3. The modeling did not credit the stability of the waste form (conservative approach).
- When the embankment was modeled, it was based on the stability for soils instead of metals. The modeling-work met the stability requirements.
- Disposal of carbon-14 in activated graphite provides, at a minimum, an equivalent level of public and environmental protection. And it is comparable to the disposal of carbon-14 in activated metal at the Class A concentration.
- Energy*Solutions* has received and disposed of carbon-14 in activated metal at the maximum concentration limit for this waste form.
- Through this presentation EnergySolutions has shown that EnergySolutions should be able to dispose of activated graphite, since it behaves similarly and, in fact, more favorably than activated metal.

Mr. Rogers addressed some questions from the Board. He said the waste stream that Energy*Solutions* is considering is from Brookhaven National Laboratory. The graphite is in the form of blocks in B-25 containers (a metal box with a volume that is 96 cubic feet). He said the containers would not be opened, and EnergySolutions would dispose of the B-25 containers in a disposal embankment using controlled, low-strength material (a "process material" like a concrete grout). He then described the process of pouring the grout and minimizing the floating of waste.

Tye Rogers gave the Board photocopies of the studies that were conducted, which provided the technical justification for the Board's review. Tye Rogers asked the Board if they had any questions, which proceeded as follows:

Questions by the Board Members:

Frank D. DeRosso: "Why is your request for carbon-14 concentration lower than for carbon-14 in activated metal, if it is actually more stable in the graphite than it is in metal?"

Tye Rogers, Energy*Solutions*: "It is the Class A limit. Right now the Class A limit is set in rule, the Federal rule. It is put into our license. It is the Class A limit."

Frank D. DeRosso: "Okay. I wonder why the rule has that. You wouldn't happen to know that?"

Tye Rogers, Energy*Solutions*: "If you look at the rule it says the Class A limit for carbon-14 in activated metal is 8.0 Ci/m^3. For everything else it is 0.8 Ci/m^3. At the time, they (NRC) could not evaluate every scenario, so they just put in metal. What we have demonstrated here today is that there is not a lot of difference between (as far as how it behaves in the disposal embankment) the metal and the graphite."

Patrick D. Cone: "What concentrations are in this graphite that you can access?"

Tye Rogers, Energy*Solutions*: "It ranges between 0.8 Ci/m^3 and 8.0 Ci/m^3. The waste from Brookhaven is about 2.0 Ci/m^3. In fact, some of the waste is greater 8.0 Ci/m^3, but EnergySolutions can not receive it, because of our license limit. We can only take the wastes that are within the license limit."

Patrick D. Cone: "Anything EnergySolutions is receiving does not go beyond 0.8 Ci/m^3?"

Tye Rogers, Energy*Solutions*: "Correct. The things we have taken above the 0.8 Ci/m^3 are in activated metal, because the limit is 8.0 Ci/m^3. EnergySolutions has received it because it is within the Class A limit."

Dianne R. Nielson, Ph.D.: "Are there other facilities that have dealt with this problem, or is this a first time issue?"

Tye Rogers, Energy*Solutions*: "Really, we are one of the only facilities that have a cap at Class A. Most of the other facilities can take Class A, B and C wastes. Typically, it is not an issue with them because they can already take it."

John W. Thomson, M.D.: "What is the generating process for this carbon-14?"

Tye Rogers, Energy*Solutions*: "It is much like what Craig Jones has talked about--the neutron activation. The ones that EnergySolutions could receive are from the National Laboratory. There is a reactor."

ROD O. JULANDER, PH.D., MADE A MOTION FOR THE BOARD TO ACCEPT THE RECOMMENDATION OF THE DIVISION, AND ALLOW THE CHANGE REQUESTED BY ENERGY*SOLUTIONS,* SECONDED BY FRANK D. DEROSSO

KAREN S. LANGLEY, M.S., CHAIR, ASKED BOARD MEMBERS, IF THEY NEEDED ADDITIONAL DISCUSSION FOR THE MOTION.

Discussion to the Motion Followed:

Discussion followed regarding why Energy*Solutions* was asking for an exemption instead of an amendment to the rule. Tye Rogers explained that this is the way the Federal Rule is set up. That it was up to the Board to change the rule to say "activated metal and activated graphite."

Dianne R. Nielson, Ph.D., asked for clarification. She said the rules currently provide for both; however, EnergySolutions can ask for exemptions, in certain situations, to amend a rule. Maybe, we should offer approval on a case by case basis.

The process for an amendment alone would be more cumbersome, because the Board would have to entertain the amendment, and it would go out for public comment. The amendment would take 30-days.

Much discussion by Board Members followed about the availability of guidance; the classification scheme in 10 CFR 61; and an interpretation of the rule. There was concern whether or not the State could make a determination and interpretation of the rule regarding what is or is not Class A waste, and what is or is not acceptable. Because there is a National Agency (NRC) that had the responsibility to write a rule, there were some Board Members that felt they did not want to make a determination. However, some Board Members did not want the NRC making the decision, because it is a State issue. One Board Member felt the DRC Staff was supportive of the action.

Dianne R. Nielson, Ph.D., offered a means for the Board to come to a better understanding and interpretation of the rule. She made a substitute motion, as follows:

DIANNE NIELSON MADE A SUBSTITUE MOTION. FIRST, THE BOARD SHOULD DIRECT THE STAFF TO CONSULT WITH THE NRC AND OBTAIN NRC'S VIEWPOINT. SECOND, THE STAFF COULD DETERMINE WHETHER THE BOARD WILL BE AS PROTECTIVE ISSUING AN "INTERPRETATION OF THE RULE" AS APPROVING A LICENSE AMENDMENT. BASED ON THESE TWO CONSIDERATIONS, THE STAFF SHOULD CONSULT WITH THE BOARD AT THE BOARD MEETING NEXT MONTH. THE STAFF SHOULD MAKE A DECISION TO PURSUE AN ACTION. THE STAFF WOULD THEN MAKE A RECOMMENDATION TO THE BOARD. FINALLY, I WOULD ENCOURAGE THE STAFF TO WORK WITH ENERGYSOLUTIONS DURING THE PROCESS. THE SUBSTITUE MOTION WAS SECONDED BY KENT J. BRADFORD.

Karen S. Langley, M.S., Chair: "The Substitute Motion has been seconded, and I believe the order requires asking additional questions on the Substitute Motion."

Additional Questions to the Substitute Motion Continued:

Further discussion by Board Members followed, and the Board asked whether "carbon-14 in activated metal" was currently being accepted and disposed of by Energy*Solutions*. Tye Rogers responded, "yes, because it is in EnergySolutions license to accept Carbon-14 in activated metal." More discussion was held to clarify the disposal of carbon-14 in activated metal versus carbon-14 in activated graphite.

At the end of the discussion Karen Langley asked if everyone understood that if the Board approves this substitute motion, then it stands. If the Board does not approve the substitute motion, then the Board will go back to the original motion. She asked, if there were any more questions.

Joseph K. Miner, M.S., PhD, commented that he was more convinced the DRC Staff agreed with the licensee: "carbon-14 in graphite is similar to carbon-14 in activated metal." He said that he preferred to take care of the vote now; however, if the Board really questioned it, then he would vote for the Substitute Motion. He asked Craig Jones, if the request needed further scrutiny by DRC Staff.

Karen S. Langley, Chair, asked for a final opinion. Craig Jones, Acting Executive Secretary, recommended the Board follow Dianne R. Nielson's approach. That way, they could be well assured that all of the Board's concerns would be addressed.

Stephen T. Nelson, Ph.D., commented that his concern was more about profits and the policy. He said his concern was not about graphite, per say, and he hoped everyone understood that.

Dianne R. Nielson, Ph.D., once again suggested to the Board for the Division to take 30-days and come back with an interpretation to the rule at the next scheduled Board Meeting. She said that she felt Energy*Solutions* was correct--they were receiving Class A waste. If they were receiving Class B and C waste, then it might be a different issue. Lacking the specifics, she suggested the Staff take the 30-days to confirm this matter. She said that she did not question the "technical review." She was suggesting the Board look at the issue in a different way.

Karen S. Langley, M.S., Chair, asked for further discussion and there was none.

KAREN S. LANGLEY, M.S., CHAIR CALLED FOR A VOTE ON THE SUBSTITUTE MOTION.

MOTION CARRIED AND APPROVED

VI. URANIUM MILL TAILINGS UPDATE (Board Information item)

a. Status of International Uranium Corp. (IUC) License Amendment (Fansteel Alternate Feed Material)

Loren Morton informed the Board that since the last Board Meeting in March, 2006, the Staff finished the project, and it was "turned over" to the Attorney General's Office. Legal Counsel has given the Staff more advice and has commented on the public participation summary. The final stage has not been finalized, but it should be in its final form in a few days. At that time, it will be given to IUC, and IUC will review and comment on the document, before DRC publishes and executes the license.

VII. OTHER DIVISION ISSUES

a. Introduction of New Board Members: Patrick D. Cone and Frank D. DeRosso

Karen S. Langley, Chair, asked the two new Board Members to introduce themselves. Karen asked Frank D. DeRosso to introduce himself first, and then she asked Patrick D. Cone to introduce himself.

Frank D. DeRosso informed the Board that he has a Master of Science in Public Health and Industrial Hygiene. Frank said, "I am the principle hygienist in the consulting firm RMEC Environmental, Inc. I am a certified industrial hygienist. I do not, however, specialize in radiation exposures. I do look at other occupational environmental exposures to both workers and the public as part of my business and in doing compliance work for EPA and OSHA."

"I am representing a regulated business. My consulting firm has a license to provide services to other license holders. We have decommissioned a radiological lab (or a lab that deals with isotopes). That is my experience with radiation. I have a good understanding of health issues, safety issues, industrial issues, and general public issues. I hope to make a valid contribution to this Board."

Patrick D. Cone informed the Board that he is a current resident of Oakley, Utah. "I have worked as a contractor with President Hinckley for about 15 years. I have also worked with helicopters for a decade in the United States' Natural Uranium Resource Evaluation. I come from a mining family. My Father was a professor at the University. My Brother, Steve, is a primary geochemist in the United States (in Colorado and at Geo Chemical). I am a free-lance photographer and writer for magazines. I am employed by the Ground and Wind Chester Company. I am representing the public."

VIII. PUBLIC COMMENT

(No public comments)

a. Update on 10 CRF Part 35

Karen S. Langley, M.S., said the only comment she had was whether April 1, 2006, was the date the Public Notice was issued for the rulemaking involving 10 CFR Part 35?

Craig W. Jones responded that the comment period opened on April 1, 2006, there was a notice published in the Deseret Morning News and Salt Lake Tribune, and the public comment period will close on May 1, 2006.

IX. OTHER ISSUES

Next Scheduled Board Meeting–May 5, 2006, Department of Environmental Quality, Building 2, Room 101, 168 N 1950 West, Salt Lake City, Utah.
THE BOARD MEETING ADJOURNED AT 3:10 P.M.